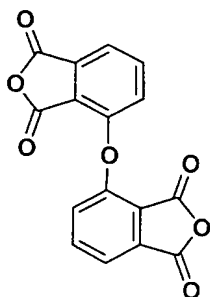


Claims

1. A thermoplastic polyimide obtainable by polymerizing an acid component and a diamine component, wherein an aromatic tetracarboxylic acid dianhydride represented by formula (I):



(I)

or its derivative is used at least as a part of the acid component.

2. The thermoplastic polyimide or imide oligomer according to claim 1 wherein a diamine represented by formula (II):



(II)

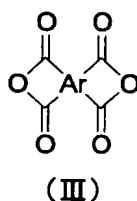
in which R is a substituted or unsubstituted bivalent organic group having an aromatic ring and/or aliphatic ring, is used at least as a part of the diamine component.

3. The thermoplastic polyimide or imide oligomer according to claim 2 wherein R is a bivalent organic group having an aromatic ring.

4. The thermoplastic polyimide or imide oligomer according to claim 3 wherein R contains at least three aromatic

rings.

5 5. The thermoplastic polyimide or imide oligomer according to any one of claims 1 to 4 wherein an aromatic tetracarboxylic acid dianhydride which is different from the aromatic tetracarboxylic acid dianhydride represented by formula (I) and the derivative thereof, represented by formula (III);



10 in which Ar is a quadrivalent organic group having an aromatic ring, or its derivative is further used.

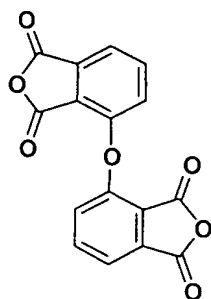
6. A solution or suspension containing a polyimide or imide oligomer as claimed in any one of claims 1 to 5.

15 7. A polyamic acid or amic acid oligomer, which is a precursor of a polyimide or imide oligomer as claimed in any one of claims 1 to 5.

20 8. A solution or suspension containing a polyamic acid or amic acid oligomer as claimed in claim 7.

25 9. A thermoplastic polyimide or imide oligomer obtainable by polymerizing an acid component and a diamine component characterized by exhibiting thermosetting properties in a high temperature region characterized in that an aromatic

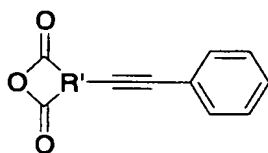
tetracarboxylic acid dianhydride represented by formula (I);



(I)

or its derivative is used at least as one part of the acid component and a dicarboxylic acid dianhydride having a triple bond in molecule or a mono-amine is used as a polymer molecule end-capping agent.

10. The thermoplastic polyimide or imide oligomer according to claim 9 wherein the polymer molecule end-capping agent is a compound represented by formula (IV);

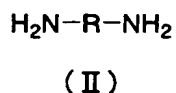


(IV)

in which R' is a trivalent organic group having 6 to 30 carbon atoms, which is a monocyclic aromatic group, a condensed polycyclic aromatic group or a non-condensed polycyclic aromatic group where aromatic groups are linked each other directly or through a linking member, and any of aromatic ring in formula (IV) may be unsubstituted or substituted.

11. The thermoplastic polyimide or imide oligomer

according to claim 9 or 10 wherein a diamine represented by formula (II);

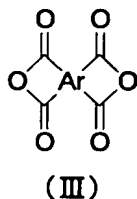


in which R is a substituted or unsubstituted bivalent organic group having aromatic and/or aliphatic rings is used at least
5 as a part of the diamine component.

12. The thermoplastic polyimide or imide oligomer according to claim 11 wherein R is a bivalent organic group having
10 an aromatic ring.

13. The thermoplastic polyimide or imide oligomer according to claim 12 wherein R has at least three aromatic rings.

15 14. The thermoplastic polyimide or imide oligomer according to any one of claims 9 to 13 wherein an aromatic tetracarboxylic acid dianhydride which is different from the aromatic tetracarboxylic acid dianhydride represented by formula (I) and the derivative thereof, represented by formula
20 (III);



in which Ar is a quadrivalent organic group having an aromatic ring, or its derivative is further used.

15. A thermosetting polyimide or imide oligomer obtainable by heat-treating a polyimide as claimed in any one of claims 9 to 14.

5

16. A solution or suspension containing a polyimide or imide oligomer as claimed in any one of claims 9 to 14.

10 17. A polyamic acid or amic acid oligomer, which is a precursor of a polyimide or imide oligomer as claimed in any one of claims 9 to 14.

18. A solution or suspension containing a polyamic acid or amic acid oligomer as claimed in claim 17.

15

19. A thermosetting polyimide or amic acid oligomer obtainable by heat-treating a polyamic acid as claimed in claim 18.